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ABSTRACT

Successfully completing school district capital construction requires the proper execution of the construction project itself involving the cooperation and understanding by all parties involved. This document presents guidelines that clarify the interrelationships and expected actions on the part of school representatives, the architect or engineer, the construction manager, and the clerk of the works during the important phase of construction supervision. It also examines the services considered necessary, or desirable, during the construction/contract administration phase of a project in order to help avoid duplication of services. (GR)

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GUIDELINES FOR SUCCESSFUL SUPERVISION OF SCHOOL DISTRICT CAPITAL CONSTRUCTION PROJECTS

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There is no doubt that the successful completion of any capital construction project is the result of careful and thoughtful planning on the part of the board of education, school administrators and teachers, and the architect or engineer (A/E). Still, all this planning could be frustrated if construction of the project is not properly executed.

The importance of supervision of the construction of a building project cannot be overemphasized and must be recognized by all concerned with the project. The actual scope of this supervision is, however, not always clearly understood.

Successful completion of a building project requires cooperation and understanding of the relationships of all concerned including the board of education, school administration, the A/E, construction manager and/or full-time project representative, and prime and subcontractors.

The purpose of these guidelines is to attempt to clarify the interrelationships and expected actions on the part of school representatives, the A/E, the construction manager and the clerk of the works during the important phase of supervision of construction. It would be appropriate to distribute copies of these guidelines to members of the board of education, the administration, the A/E, construction manager, and the clerk, so that everyone

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has an understanding of what is expected and there will be few "surprises" as the work progresses.

Needed Services

Just as it is important that the board of education know and understand what basic services will be provided by the A/E during the planning and design phases of a project, it is imperative that they know what services are essential during the construction/contract administration phase of a project. By knowing who is responsible to provide such services they will not pay for any duplication of services.

Services necessary, or desirable during construction include the following:

Preparation of contracts
Job safety considerations
Review bid bonds - performance bonds - labor and material bonds
Review required insurance coverage, policies
Determine insurable values
Job meetings
Establish accounting control and procedures
Check provision of temporary services
Administer change orders - verify costs and/or credits
Obtain progress schedules from all contractors
Correlate the progress of the work
Expedite settlement of contract disputes in concert with owner
Periodic on-site inspections

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Establish quality standards
Ascertain if work is in accordance with contract documents
Continuous on-site inspection
Certification of Substantial Completion
Punch list
Final inspection
Final certificate of payment

Another factor influencing public school construction is a 1967 Oneida County court decision (282NYS, 2d. 385) which holds that "over-all coordination and supervision of a project must be performed by the municipal corporation ... by its own architect or agent, and that the specifications and the contract awarded to the general contractor cannot delegate such supervisory responsibility to him ..."

A more recent decision involving the City of Syracuse (40AD, 2d. 584) reaffirms this principle. The full text of these decisions should be discussed with the local school board attorney as to the affect on the specifications for any school construction project.

In effect, the responsibility for the expeditious progress of the work and the coordination of the work of all contractors cannot be assigned to a prime contractor, historically the contractor for general construction. In the final analysis, the responsibility rests with the board of education. Typically, expediting and coordinating the work and the related administration of the construction contracts is beyond the usual basic services of the A/E. Therefore, the board of education may be required to retain additional services. Such services are available from A/E, or construction management firms which have brought together the necessary expertise.

School building construction generates considerable interest throughout a community and many of the public, and even the faculty, will follow the progress of the work. Such interest definitely should not take the form of on-site visitations. The chief school administrator, his representative, and the board of education, while having primary involvement in the project, should not view the project as "inspectors" or "supervisors," but rather as vitally interested observers.

The chief school administrator or an appointed representative is normally designated to act as liaison between the board and the A/E. Being deeply involved in the development and planning of the building project and responsible for bringing about the mandates of the board, this representative is obligated to transmit and protect the vital interests of the board, and obviously must have the complete confidence of the board.

The board of education selects the A/E on the basis of many factors, not the least of which includes the A/E's past performance in dealings with other clients. Selection should be such that an amiable, professional relationship between the board and the A/E can be expected. The A/E is retained to perform all necessary professional and technical services and to see that, to the best of his ability, the board obtains a first class and complete job in accordance with the contract documents. To this end, the board should have confidence in the integrity of the A/E. This expectation is not unreasonable when it is considered that the professional practice of the A/E is dependent upon a reputation of being able to produce complete, competent, and satisfactory work.

It is again pointed out that it is the responsibility of the board of education, typically through an agent, to expedite progress of the work and to coordinate the work of all prime contractors. Such responsibility cannot be assigned to one of the prime contractors on the job. Additionally, professional supervision by an A/E of the construction of a public works, while required by law, does not usually involve continuous, "on the job" inspection of

the construction; in fact, continuous on-site inspection and guarantees of the contractors' work are usually specifically excluded in the A/E contract with the Board of Education.

The function of the full-time, on-site supervision is adjunct to the professional supervision required by statute and does not necessarily include the coordination of construction contracts. Additionally, the title or designation of the individual or group which performs this supervision and/or construction coordination varies. (The functions of a construction manager and a clerk of the works are discussed later.) Indeed, the scope of each function may be a variable of, and a variable within, the differing approaches to construction. For instance, with the historical Multiple Contract System, slightly expanded A/E services combined with a full-time project representative may yield satisfactory results. In like manner, with the Managed Multiple Contract System, a construction manager may provide any or all of the services connected with expediting and coordinating the work, and the full-time, on-site supervision.

During the construction period, the A/E acts as the representative of the board and has the responsibility of providing supervision and determining if the work is proceeding in accordance with the contract documents. The agent performing the full-time, on-site supervision has only the authority delegated to him. For the A/E to assume professional responsibility properly, it is imperative that all communications concerning the condition and progress of the work be directed to the A/E. The A/E is the sole interpreter of the conditions of the contract documents as well as the judge of performance and may reject work not complying with the documents. Likewise, it is essential that all instructions and/or communications pertaining to supervision be directed to the contractors from the A/E. Only in this way will the A/E be fully knowledgeable of the conditions and progress of the work. Except that the A/E is usually given authority to make minor changes in the work which do not involve extra costs and are not inconsistent with the purposes of the project, i.e. the construction contracts between the board of education and the various prime contractors cannot be changed without written authorization of the board in the form of change orders counter-signed by the A/E.

A/E Services

Architect/Engineers Contract - This capital construction project will involve a series of events commencing with determination of need, then planning, construction, and occupancy. Throughout this process, professional services of an architect or engineer (A/E) are necessary.

The relationship between the board of education and the A/E should be formalized by a written contract which clearly details the extent of services required and expected by the board and provided by the A/E. In this regard it is strongly suggested that the school board attorney be consulted and that the following provisions be included in the contract.

- Supervision of a public works project by an A/E is required by Subdivision 3 of Section 7209 of the Education Law. Such supervision would include ensuring completion of the work in accordance with the construction contract documents.

- Design must be in accordance with applicable provisions of the New York State Uniform Fire Prevention and Building Code and the Energy Conservation Construction Code.

- Inspections of construction are required by 19NYCRR444 to ensure work in accordance with the construction contract

drawings and ensure compliance with applicable provisions of the Uniform Code.

- Various assurances and a Certification of Substantial Completion must be executed and submitted to the Education Department.

Due to an increasing number of liability judgments in recent years based on literal court definitions of "supervision," many A/E firms are reluctant to even use the word. In fact, reference to the term "supervision" is omitted from standard American Institute of Architects forms. The basic problem is the lack of a universally or legally accepted definition. Nevertheless, supervision of construction is required on all public works projects when the safeguarding of life, health, and property is concerned (Education Law section 7209, subd. 3). Such supervision must be rendered by A/E firms even if it is called something other than "supervision."

By making periodic visits to the site, the A/E will determine if work is in accordance with the intent of the contract documents. The A/E will endeavor to guard the board of education against defects and deficiencies in the work of contractors, but he does not guarantee performance of the contracts or construction methods and procedures.

Such professional supervision by the A/E is distinguished from the full-time, on-site endeavors of a full-time project representative who is retained to provide extensive representation on the site.

After construction contracts are signed and prior to commencing construction, the A/E usually requires prime contractors to submit construction-phase schedules. These are then discussed, modified and coordinated at an initial job meeting which takes place prior to construction. Traditionally, once construction begins the A/E will visit the project on a periodic basis (usually at least weekly) to determine that the work is progressing on schedule and in accordance with plans and specifications. Also, job meetings are held (usually on at least a monthly basis), attended by the A/E, each of the primer contractors, a representative of the owner, and the clerk(s) of the works. At these meetings the progress of the work is discussed, problems are presented and resolved, and often requests for payment are presented for review and approval by the A/E.

Construction Manager

The Oneida and Syracuse decisions mentioned earlier, gave rise to specialty firms having the expertise to expedite and coordinate construction and to perform related administration of the construction contracts. Such firms are generally known as "construction managers." Unfortunately, the term means different things to different people and creates a degree of confusion.

Construction management includes services which begin at the inception of a project and provide technical assistance and cost estimating to the owner and A/E as a project develops. Other services include the development of bid packages and the coordination of many multiple contracts which, in the past, were subcontracts to the prime contractors. While such services have ready application to very large, mega complexes as were built by the State University, it can be argued that such services are not necessary for the size of projects typically advanced by school districts. It is not the purpose of this guideline to advocate any particular scope of construction management services, other than those services essential to "manage the construction," i.e. those necessary to expedite and coordinate the work together with related administration of contracts.

On projects of other than minor, or simple scope, this management of construction is usually performed by a construction manager and is adjunct to the supervision of the A/E required by statute. Such duties also have the purpose of developing and administering cost accounting controls and payment procedures, and ensuring that construction of the project is consistent with applicable provisions of the State Uniform Code and in accordance with the contract documents.

For relatively simple, straight forward projects, where it is not necessary to coordinate and expedite the work and progress of several prime contractors, a clerk of the works may be retained to provide necessary management of construction.

As in the case of A/E services, the board of education must determine what construction management services are necessary, what are desirable, and which services are, or are not, already being provided by the A/E. In consultation with the school attorney, the extent of services necessary, should then be formalized in a written contract which details the specific duties of "management of construction." In this regard, the attributes, duties, and responsibilities applicable to a clerk of the works, as detailed below, are generally appropriate to a construction manager.

The Clerk of the Works

With the historic multiple contract system, full-time project representation was commonly provided by an agent sometimes referred to as the "Clerk of the Works." This term has been much overworked and greatly misunderstood. Additionally, it is a term that no longer is readily applicable to the full-time, on-site supervisory functions and/or construction coordination activities necessary on a construction project. Still the attributes, duties, and responsibilities applicable to a clerk of the works are generally appropriate for any agent performing full-time supervision including a construction manager.

The relation of the clerk of the works to the construction project is unique and requires a person of particular qualifications. The clerk must be mutually acceptable to the board and the architect and is usually paid by the board. Providing competent, adequate and continuous construction inspection, the clerk acts as the "eyes" of the board and architect. Since the architect has contractual responsibilities to the board for the overall completion of the project, it is essential for the clerk of the works, while being responsible to the board, to act under the direct supervision of the architect. The clerk has only as much authority as is delegated to him by the board and the architect. In this regard, his authority, jurisdiction, and limitations, as well as duties and responsibilities, should be clearly defined in the contract documents.

Technical knowledge of building materials and construction procedures is essential for the clerk of the works and college training in such fields is desirable. A clerk must be able to read and understand plans and specifications so that materials delivered and progress of the work can be properly inspected. It is essential that the clerk know the standards that work and materials must meet so that work will proceed in accordance with the contract documents with fair demands being made on the contractors. A working knowledge of codes and ordinances and safety laws is also important.

Actual field experience in construction is an excellent qualification for a clerk. Knowledge of construction techniques, awareness of possible trouble spots, and the ability to foresee and avert delays are improved through such experience. In this regard, the

attitude of the clerk must be quite different from that of the contractor, with respect to the work. The contractor, generally, is primarily concerned with the most economical and expeditious means of completing the work, while the clerk, in addition to this, is concerned with compliance with the contract documents.

The character and personality of the clerk are also important. He must be reasonable and tactful, as the personal relationship and spirit of cooperation between clerk, architect, and contractors are essential for the smooth progress of the work.

Once retained for the project, the clerk of the works should make himself thoroughly familiar with the contract and plans and specifications for all contracts of the project, including all addenda, accepted alternates, and change orders. With this information, he is in a better position to anticipate questions and problems. Also, discrepancies and omissions may be uncovered that were not cleared up during the bidding. Prior to actual construction, he should review the property survey of the project, with regard to the limits of the contract, protection of adjacent property, and type and location of underground utilities that might be affected by excavation. Any information that is lacking or is not clear should be requested from the architect immediately. In no case should the clerk supply missing information on his own. All permits and insurance coverage, such as compensation and public liability insurance, and inspections and testing required of the contractors, should be reviewed for conformance with the specifications. Knowledge of approved subcontractors and materials is also essential.

A printed schedule of the progress of the work, which guides all contracts, is commonly provided. The clerk, while not personally responsible for the progress of the work, should carefully compare actual construction with this progress chart and do everything within this power to correlate and expedite the work. Notification of the need for timely submissions of shop drawings required of the contractors and subsequent approvals by the architect, as well as reminding the contractor of the necessity of deliveries and supplies of materials and labor for specific subsequent work, are but some of the ways the clerk can help the progress of the work. The clerk should constantly endeavor not to be responsible for delays and should try to avert difficulties rather than just report errors after they are made.

During construction, the architect must make his own personal inspection of certain phases of the work before it is covered up. The clerk should be responsible for notifying the architect when the work will be ready for inspection. Such work might include excavations, forming, concrete reinforcing steel, concreting, welding, and mechanical piping and conduit. Where testing of some materials is required, the clerk should give close attention to the proper taking of samples and test results. Materials delivered are inspected by the clerk for conformity with the contract documents and fitness for use. Materials in place are inspected for workmanship in accordance with the contracts. Rejected items should be removed from the site. Where an interpretation of the drawings or specifications is required, the clerk should obtain such information from the architect, rather than give his own opinion, thus avoiding any legal implications. Minor changes in the work to expedite progress are common; however, a record of such changes should be kept by the clerk and initialed by the architect and contractor. Changes other than those which are minor in nature or affect the completion date, and those which involve a change in contract price must not be done without properly executed change orders.

A great deal of the clerk's time will be spent keeping records and writing reports. The

importance of these records and reports cannot be overemphasized. The architect must be kept closely informed of day-to-day happenings so that he may properly assume his overall responsibility for the work. Payments to the contractors are based on verification by the clerk of amounts of work done and materials in place or properly stored, and the possibility of the work becoming subject to litigation cannot be overlooked.

Formal progress reports at specific intervals and daily reports are normally required; therefore the clerk should keep a private and personal day-to-day diary. This diary should include each day's weather and temperatures at specific times, such as at the beginning, middle, and end of the workday. The number of tradesmen working and a brief description of where and on what they are working should be included, as should the kind and amount of materials delivered, with any special provisions for storage and protection and materials or work rejected. All job conditions and unexpected conditions should be recorded, as well as specific instructions from the architect and questions from the contractors. Unusual occurrences, such as strikes and walkouts, determinations of prior problems, names of visitors to the site, and anything relative to the history of the work are properly entered in this diary.

To supervise the work effectively, the clerk should avoid a regular pattern of inspection. The time of his inspection at a particular section of job should not be predictable. He should be the first to arrive on the job in the morning and the last to leave at night.